

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	§	
Kendall E. Keene et al.	§	Confirmation No.: 5426
	§	
Serial No.: 10/664,747	§	Group Art Unit: 3676
	§	
Filed: September 18, 2003	§	Examiner: Vishal A. Patel
	§	
For: Annular Seal	§	Atty. Docket: CMRN:0063/SWA/COH
	§	OTD-030414 US

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**REPLY BRIEF PURSUANT TO 37 C.F.R §§ 41.41**

This Reply Brief is being filed in response to the Examiner's Answer mailed on May 13, 2008. In accordance with 37 C.F.R. § 1.136, Appellants request that this and any future reply requiring an extension of time be treated according to the General Authorization for Extensions of Time previously submitted. The Commissioner is authorized to charge any fees which may be required to Deposit Account No. 03-0335; Order No. OTD-030414 (CMRN:0063/SWA).

**1. STATUS OF CLAIMS**

Claims 5-8, 12-16, and 19-28 are currently pending, have been twice rejected, and are the subject of this Appeal. Of the above-listed claims, claims 5, 19 and 28 are independent claims. Claims 1-4, 9-11, 17 and 18 have been previously cancelled without prejudice.

2. **GROUND OF REJECTIONS TO BE REVIEWED ON APPEAL**

**First Ground of Rejection:**

The Examiner rejected claims 19 and 27 under 35 U.S.C. § 102(b) as anticipated by Kilmoyer (U.S. Patent No. 4,553,759).

**Second Ground of Rejection:**

The Examiner rejected claims 20-22 under 35 U.S.C. § 103(a) as obvious in view of Kilmoyer.

**Third Ground of Rejection:**

The Examiner rejected claims 5-8, 12-16, and 26 under 35 U.S.C. § 103(a) as obvious in view of Kilmoyer, Vanderford et al. (U.S. Patent No. 4,381,114), and McEver et al. (U.S. Patent No. 4,496,162).

**Fourth Ground of Rejection:**

The Examiner rejected claims 19-22 under 35 U.S.C. § 103(a) as obvious in view of Kilmoyer and McEver.

**Fifth Ground of Rejection:**

The Examiner rejected claims 23-25 under 35 U.S.C. § 103(a) as obvious in view of McEver, Kilmoyer, and Vanderford.

**Sixth Ground of Rejection:**

The Examiner rejected claim 28 under 35 U.S.C. § 103(a) as obvious in view of McEver, Kilmoyer, Vanderford, and Taylor (U.S. Patent No. 3,869,132).

3. **ARGUMENT**

As discussed in detail below, and as set forth in the Appeal Brief filed on December 17, 2007, and the Supplemental Appeal Brief filed on February 29, 2008, Appellants respectfully assert that the claims of the present patent application are patentable and in condition for

allowance. For at least the reasons set forth below, Appellants respectfully urge the Board to overturn the Examiner's rejections and allow all pending claims.

### Legal Precedents

Regarding the rejections under 35 U.S.C. § 102, anticipation can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under 35 U.S.C. § 102, a single reference must teach each and every limitation of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Accordingly, Applicant needs only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter. The prior art reference also must show the identical invention "in as complete detail as contained in the ... claim" to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989).

Furthermore, Appellants respectfully submit to the Board that, during patent examination, the pending claims must be given an interpretation that is reasonable and consistent with the specification. *See In re Prater*, 162 U.S.P.Q. 541, 550-551 (C.C.P.A. 1969); *In re Morris*, 44 U.S.P.Q.2d 1023, 1027-28 (Fed. Cir. 1997); *see also* M.P.E.P. § 2111 (describing the standards for claim interpretation during prosecution). Interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *See In re Cortright*, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); *see also* M.P.E.P. § 2111. That is, recitations of a claim must be read as they would be interpreted by those of ordinary skill in the art. *See Rexnord Corp. v. Laliram Corp.*, 60 U.S.P.Q.2d 1851, 1854 (Fed. Cir. 2001); *see also* M.P.E.P. § 2111. In summary, an Examiner, during prosecution, must interpret a claim recitation as one of ordinary skill in the art would reasonably interpret the claim in view of the specification. *See In re American Academy of Science Tech Center*, 70 U.S.P.Q.2d 1827 (Fed. Cir. 2004).

Regarding the rejections under 35 U.S.C. § 103, the burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735

(PTO Bd. App. 1979). In addressing obviousness determinations under 35 U.S.C. § 103, the Supreme Court in *KSR International Co. v. Teleflex Inc.*, No. 04-1350 (April 30, 2007), reaffirmed many of its precedents relating to obviousness including its holding in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). In *Graham*, the Court set out an objective analysis for applying the statutory language of § 103:

Under § 103, the scope and content of the prior art are to be determined, differences between the prior art and the claims at issue are to be ascertained, and the level of ordinary skill in the pertinent art are to be resolved. Against this background the obviousness or non-obviousness of the subject matter is to be determined. Such secondary considerations as commercial success, long-felt but unresolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

*KSR*, slip op. at 2 (citing *Graham*, 383 U.S. at 17-18).

In *KSR*, the Court also reaffirmed that “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *Id.* at 14. In this regard, the *KSR* court stated that “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does ... because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *Id.* at 14-15. Traditionally, to establish a *prima facie* case of obviousness, the CCPA and the Federal Circuit have required that the prior art not only include all of the claimed elements, but also some teaching, suggestion, or motivation to combine the known elements in the same manner set forth in the claim at issue. See, e.g., *ASC Hospital Systems Inc. v. Montifiore Hospital*, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984) (holding that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination.); *In re Mills*, 16 U.S.P.Q.2d 1430, 1433 (Fed. Cir. 1990) (holding that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination). In *KSR*, the court noted that the demonstration of a teaching, suggestion, or motivation to combine

provides a “helpful insight” in determining whether claimed subject matter is obvious. *KSR*, *slip op.* at 14. However, the court rejected a rigid application of the “TSM” test. *Id.* at 11. In this regard, the court stated:

The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and explicit content of issued patents. The diversity of inventive pursuit and of modern technology counsels against limiting the analysis in this way. In many fields it may be that there is little discussion of obvious techniques or combinations, and it often may be the case that market demand, rather than scientific literature, will drive design trends.

*Id.* at 15. In other words, the *KSR* court rejected a rigid application of the TSM test which requires that a teaching, suggestion or motivation to combine elements in a particular manner must be explicitly found in the cited prior art. Instead, the *KSR* court favored a more expansive view of the sources of evidence that may be considered in determining an apparent reason to combine known elements by stating:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art all in order to determine whether there was an apparent reason to combine in the known elements in the fashion claimed in the patent at issue.

*Id.* at 14.

The *KSR* court also noted that there is not necessarily an inconsistency between the idea underlying the TSM test and the *Graham* analysis, and it further stated that the broader application of the TSM test found in certain Federal Circuit decisions appears to be consistent with *Graham*. *Id.* at 17-18 (citing *DyStar Textilfarben GmbH and Co. v. C.H. Patrick Co.*, 464 F.3d 1356, 1367 (2006) (“Our suggestion test is in actuality quite flexible and not only permits but *requires* consideration of common knowledge and common sense.”); *Alza Corp. v. Mylan Labs, Inc.*, 464 F.3d 1286, 1291 (2006) (“There is flexibility in our obviousness jurisprudence because a motivation may be found *implicitly* in the prior art. We do not have a rigid test that requires a teaching to combine.”)).

Furthermore, the *KSR* court did not diminish the requirement for objective evidence of obviousness. *Id.* at 14 (“To facilitate review, this analysis should be made explicit. See *In re Kahn*, 441 F.3d 977, 988 (CA Fed. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.”); see also, *In re Lee*, 61 U.S.P.Q.2d 1430, 1436 (Fed. Cir. 2002) (holding that the factual inquiry whether to combine references must be thorough and searching, and that it must be based on objective evidence of record).

When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Federal Circuit has warned that the Examiner must not, “fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.” *In re Dembiczak*, F.3d 994, 999, 50 U.S.P.Q.2d 52 (Fed. Cir. 1999) (quoting *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983)).

Additionally, it is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 U.S.P.Q. 769, 779 (Fed. Cir. 1983); M.P.E.P. § 2145. Moreover, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959); see M.P.E.P. § 2143.01(VI). If the proposed modification or combination would render the prior art invention being modified unsatisfactory for its

intended purpose, then there is no suggestion or motivation to make the proposed modification.

*In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); *see* M.P.E.P. § 2143.01(V).

**Summary of the Kilmoyer Reference**

Regarding the Kilmoyer reference, in reply to Appellants' arguments set forth in the Appeal Brief, the Examiner stated:

Appellants' argument that Kilmoyer does not disclose a first ring and a first groove where the circumference of the first ring at a location nearest the bottom of the first groove differs before mounting so as to apply a net radial force to said body in a direction substantially perpendicular to said longitudinal axis is not persuasive because as stated in column 3, the ring 46 or 48 ensure a preload on the sealing lips. This is the reason that the rings must have a circumference that is different than the bottom of the first groove 56 or 58 to provide preload on the sealing lips. Furthermore the relaxing of the sealing lips at low temperature will cause the groove dimensions to change and not the dimension of the soft seal rings as implied in column 3, lines 10-22).

Examiner's Answer, page 18. Appellants note that the Examiner's arguments have referred to both FIGS. 2 and 3 of Kilmoyer, which are substantially similar. Accordingly, Appellants will focus arguments on the elements of FIG. 2, however it should be understood that the same arguments apply to the elements of FIG. 3. For example, the rings 46 and 48 of FIG. 2 correspond to the rings 78 and 80 of FIG. 3, while the grooves 56 and 58 of FIG. 2 correspond to the grooves 84 and 86 of FIG. 3.

Contrary to the Examiner's interpretation, Kilmoyer does not disclose that the rings 46 and 48 apply a preload to the sealing lips 62 and 64, and nothing in column 3 of the reference states, discloses, or implies such a relationship. Rather, the load ring 44 applies a load to the sealing ring 42. *See* Kilmoyer, col. 3, lines 23-35. Indeed, the only preload of the soft sealing rings 46 and 48 disclosed in Kilmoyer is that "they extend beyond their adjacent sealing lips, so that they remain in contact with the surface against which they are intended to seal." Kilmoyer, col. 4, lines 45-47.

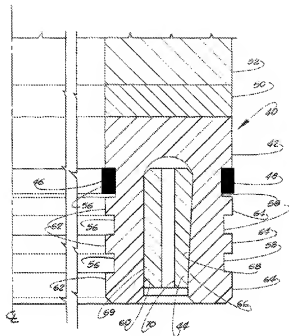
In addition, nothing in Kilmoyer suggests that the groove 56 and 58 dimensions change. The passage continually cited by the Examiner to allegedly disclose limitations of the present

claims is clearly being misunderstood. To aid in the understanding of this passage, Appellants reproduce the passage below:

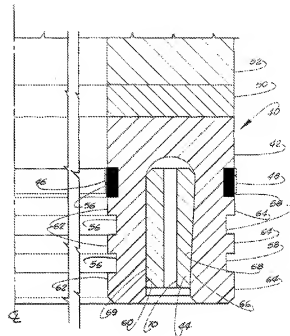
Seal rings 46 and 48 each have a cross-sectional area greater than the cross-sectional area of the groove in which they are positioned to ensure that they are held in sealing engagement with the surface against which they are intended to seal. Soft seal rings 46 and 48 are virgin or soft polytetrafluoroethylene to improve low temperature sealing of the seal assembly 40 while such lower temperature following a hot thermal cycle can cause the lips 62 and 64 to relax their preload. In such case soft seal rings 46 and 48 ensure a bubble tight seal during the time that the temperature is sufficiently low to cause a relaxing of the preload on the sealing lips of sealing ring 42.

Kilmoyer, col. 3, lines 10-22. The Examiner gives particular weight to the different cross-sectional areas of the rings 46 and 48 and the grooves 56 and 58, alleging that this feature discloses application of a net radial force to the body 42 in a direction substantially perpendicular to the longitudinal axis. *See* Examiner's Answer, page 3. This reasoning is completely nonsensical. As described in Kilmoyer and illustrated in FIG. 2, the difference in cross-sectional areas merely means that the rings 46 and 48 protrude radially from the grooves 56 and 58 so that the rings 46 and 48 "are held in sealing engagement with the surface against which they are intended to seal." Kilmoyer, col. 3, lines 12-14. This relationship is better illustrated in the reproductions of FIG. 2 below, wherein the figure on the left shows the cross-sectional areas of the rings 46 and 48 as black boxes, and the figure on the right shows the cross-sectional areas of the grooves 56 and 58 as black boxes.



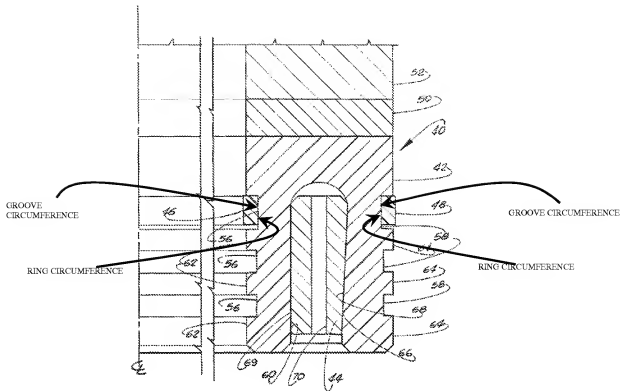


*Fig. 2.*



*Fig. 2.*

To reiterate, the difference in cross-sectional areas between the rings 46 and 48 and the grooves 56 and 58 in no way discloses, suggests, or implies that the rings 46 and 48 apply a radial force to the seal body. In addition, there is no suggestion that the circumference of ring 46 is different from the circumference of groove 56, nor is there any suggestion that the circumference of ring 48 is different from the circumference of groove 58. Again, FIG. 2 is reproduced below to show that the circumferences are not illustrated as different, and nothing in Kilmoyer describes them as such.



*Fig. 2*

Furthermore, Appellants note that the Examiner's logic regarding the Kilmoier reference is circular. Specifically, the Examiner argues that the rings 46 and 48 apply a radial force, therefore they must have different circumferences than the grooves 56 and 58. *See Examiner's Answer*, page 18. However, the Examiner also argues that the rings 46 and 48 have different circumferences from the grooves 56 and 58, and therefore they apply radial forces to the body. *See Examiner's Answer*, page 3. As there is no discussion of the relationship between the ring and groove circumferences or of a radial force applied by the rings, neither of the Examiner's arguments can be supported based on what is actually disclosed in Kilmoier.

For at least the reasons stated above, it is clear that there is no support in Kilmoier for the Examiner's assertions. Appellants now analyze the present claims in light of this explanation of the deficiencies of the Kilmoier reference.

**First Ground of Rejection**

The Examiner rejected claims 19 and 27 under 35 U.S.C. § 102(b) as anticipated by Kilmoyer. Examiner's Answer, page 3. Of these, claim 19 is independent, and claim 27 depends therefrom. Claim 19 recites:

A seal assembly for closing off an annular space between a first and second body and supported by at least one of said first and second bodies, comprising:

an annularly shaped body having an upper and a lower end and a longitudinal axis;

said body comprises at least one first ring in a first groove, said first groove having a bottom and a first circumference at said bottom;

the circumference of said first ring at a location nearest said first circumference of said first groove differs before mounting from said first circumference of said first groove so as to apply a net radial force to said body in a direction substantially perpendicular to said longitudinal axis.

As an example of a missing claim limitation, Kilmoyer does not disclose a first ring and a first groove where the circumference of the first ring at a location nearest the bottom of the first groove differs before mounting. The Examiner has conceded that "before mounting" provides a structural limitation "because it describes a physical characteristic of the first ring." Examiner's Answer, page 18. However, the Examiner argues that this claim limitation cannot mean that a first ring disposed on the outer face of the seal assembly has a circumference smaller than the bottom of the first groove, an embodiment which is described in the present specification, because this interpretation would imply that claims 23-25 do not further limit claim 19. Examiner's Answer, pages 18-19. This argument makes no sense as claim 23, on which claims 24 and 25 are dependent, recites limitations of a backup ring, not the first ring recited in claim 19. Clearly, claim 23 recites an additional element and therefore any description of the first ring relating to this additional element necessarily provides additional limitations to claim 19. The Examiner's refusal to accept the plain meaning of the claim language as recited in claim 19 is clearly in error. As described in detail above, Kilmoyer does not disclose a ring having a

different circumference from the groove in which it is disposed before mounting as recited in claim 19.

In addition, nothing in Kilmoyer describes the rings 46 or 48 as applying “a net radial force to said body in a direction substantially perpendicular to said longitudinal axis” as recited in claim 19. Rather, as described above, Kilmoyer discloses a ring in a groove wherein the ring has a greater cross-sectional area than the groove in which it rests. Although Kilmoyer does show a ring 46 resting in a groove 56, neither the specification nor the claims ever mention a circumferential relationship between the ring and the groove, much less a relationship resulting in a net radial force applied to the annular seal body. Thus, the seal assembly 40 of Kilmoyer does not meet the legal standard of anticipation because it fails to disclose a seal assembly having the exact structure recited in claim 19.

For at least the reasons described above, Appellants respectfully assert that the Examiner has not set forth a *prima facie* case of anticipation regarding independent claim 19 or its dependent claim 27. Thus, Appellants respectfully request that the Board reverse the Examiner’s rejection of claims 19 and 27, and direct the Examiner to allow these claims.

### **Second Ground of Rejection**

The Examiner rejected claims 20-22 under 35 U.S.C. § 103(a) as obvious in view of Kilmoyer. Examiner’s Answer, page 4. Claims 20-22 depend from independent claim 19. As set forth above, the Kilmoyer reference does not disclose all the limitations of independent claim 19, and therefore its dependent claims 20-22 are believed to be allowable at least based on their dependence from an allowable base claim.

Furthermore, the Examiner has not provided a clear line of reasoning as to why the claimed invention would have been obvious to one with ordinary skill in the art. As previously mentioned, Kilmoyer does not disclose the circumferential relationship between a first ring and a first groove as disclosed in claim 19. Accordingly, there would have been no reason to determine specific values for an undisclosed feature. Indeed, the M.P.E.P., relying on long-standing legal precedent, recognizes that “[a] particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as

routine experimentation.” M.P.E.P § 2144.05. Thus, Appellants respectfully assert that dependent claims 20-22 cannot be rejected as obvious in light of Kilmoyer because Kilmoyer does not disclose the first ring/first groove circumferential relationship and as a result does not provide motivation to determine optimum values for variables not yet recognized.

Consequently, Appellants respectfully assert that Kilmoyer does not support a *prima facie* case of obvious with respect to dependent claims 20-22. With the foregoing in mind, Appellants respectfully request that the Board withdraw the rejection of claims 20-22 and direct the Examiner to allow these claims.

### **Third Ground of Rejection**

The Examiner rejected claims 5-8, 12-16, and 26 under 35 U.S.C. § 103(a) as obvious in view of McEver, Vanderford, and Kilmoyer. Examiner’s Answer, page 5. Of these, claim 5 is independent, and the remaining claims depend therefrom. Claim 5 recites:

A seal assembly for closing off an annular space between a first and second body and supported by at least one of said first and second bodies, comprising:

an annularly shaped body having an upper and a lower end and a longitudinal axis; and

at least one backup ring mounted on one of said ends of said body and having a relaxed dimension greater than the annular space between said first and second bodies so that opposed ends on said backup ring must be compressed to be inserted in the annular space, said backup ring further comprising a bend between said opposed ends to store a force created by insertion of said backup ring into the annular space and apply said force on said opposed ends against said first and second bodies;

said body comprises at least one first ring in a first groove, said first groove having a bottom and a first circumference at said bottom;

the circumference of said first ring at a location nearest said first circumference of said first groove differs before mounting from said first circumference of said first groove so as to apply a net radial force to said body in a direction substantially perpendicular to said longitudinal axis.

Appellants respectfully stand by the assertion that the cited references, taken alone or in hypothetical combination, do not disclose all of the features recited in independent claim 5. For example, the combination does not disclose the first ring/first groove circumferential relationship designed to apply a net radial force into the annular seal body as recited in claim 5. In an effort to establish a *prima facie* case of obviousness, the Examiner relies on Kilmoyer to disclose the circumferential relationship between the first ring and the first groove on the annular seal body. As previously discussed in regard to the first ground of rejection, Kilmoyer fails to disclose or suggest a circumferential relationship wherein the first ring applies a net radial force to the annular seal body. Furthermore, the Vanderford and McEver references do not obviate the deficiencies of the Kilmoyer reference with respect to the first ring/first groove circumferential relationship. Thus, a *prima facie* case is not established.

In addition, the Examiner has improperly combined two references that teach away from one another. The primary McEver reference explicitly teaches away from the Vanderford reference. Specifically, McEver states:

In an application filed Nov. 23, 1981, assigned Ser. No. 324,125, and now U.S. Pat. No. 4,381,114, a wellhead seal was disclosed including a resilient ring having a concave outer portion with upper and lower metal ring caps which are held in sealing engagement with their respective sealing surfaces responsive to fluid pressure which is exerted on the outer concave surface of the resilient ring.

While both of the above seals have been used to provide a desired annulus seal, the second seal assembly cannot be energized within a well bore and the first seal assembly does not protect against corrosive fluids.

McEver, col. 1, lines 21-32 (emphasis added). Thus, McEver explicitly states that it is not properly combinable with Vanderford, therefore there can be no reason to combine the cited references.

Accordingly, Appellants respectfully assert that Kilmoyer, McEver, and Vanderford do not support a *prima facie* case of obviousness with respect to independent claim 5 or its dependent claims. Appellants therefore respectfully request that the Board withdraw the rejection of claims 5-8, 12-16 and 26 and direct the Examiner to allow these claims.

**Fourth Ground of Rejection**

The Examiner rejected claims 19-22 under 35 U.S.C. § 103(a) as obvious in view of McEver and Kilmoyer. Examiner's Answer, page 10. Of these, claim 19 is independent, and the remaining claims depend therefrom.

Again, Appellants respectfully assert that the Examiner has failed to establish a *prima facie* case of obviousness because the cited references, taken alone or in hypothetical combination, do not disclose all of the features recited in independent claim 19. The Examiner continues to rely on Kilmoyer for disclosing the first ring/first groove circumference relationship. See Examiner's Answer, pages 10-11 and 23. As discussed above with respect to the first ground of rejection, the Kilmoyer reference does not disclose the recited ring and groove. While Kilmoyer does disclose a ring inserted in a groove, there is nothing in the Kilmoyer reference which discloses or even suggests that "the circumference of said first ring at a location nearest said first circumference of said first groove differs before mounting from said first circumference of said first groove so as to apply a net radial force to said body in a direction substantially perpendicular to said longitudinal axis" as recited in claim 19 (emphasis added).

In addition, McEver does not obviate the deficiencies of Kilmoyer. Specifically, McEver does not disclose a ring in a groove, much less the recited relationship between the ring and groove. Appellants therefore respectfully assert that McEver and Kilmoyer do not support a *prima facie* case of obviousness with respect to independent claim 19 and its respective dependent claims 20-22. With the foregoing in mind, Appellants respectfully request that the Board withdraw the rejection of claims 19-22 and direct the Examiner to allow these claims.

**Fifth Ground of Rejection**

The Examiner rejected claims 23-25 under 35 U.S.C. § 103(a) as obvious in view of McEver and Kilmoyer as applied to claim 22, and further in view of Vanderford. Examiner's Answer, page 12. Appellants respectfully assert that the Examiner failed to establish a *prima facie* case of obviousness in rejecting independent claim 19 and thus claims 23-25 should be allowable due to their dependence on claim 19. Likewise, the additional cited reference, Vanderford, addresses backup rings and does not speak to the deficiency in the obviousness rejection of claim 19; namely, that the stated combination does not disclose the first ring/first

groove circumferential relationship. Accordingly, Appellants respectfully assert that McEver, Kilmoyer, and Vanderford do not support a *prima facie* case of obviousness with respect to dependent claims 23-25. Thus, Appellants respectfully request that the Board withdraw the rejection of dependent claims 23-25 and direct the Examiner to allow these claims.

**Sixth Ground of Rejection**

The Examiner rejected claim 28 under 35 U.S.C. § 103(a) as obvious in view of McEver, Vanderford, Taylor, and Kilmoyer. Examiner's Answer, page 13. Independent claim 28 recites:

A seal assembly for sealing an annular space between first and second bodies, comprising:

an annularly shaped body having first and second ends, and at least one notched portion disposed between the first and second ends;

at least one backup ring disposed on one of the first or second ends, the backup ring comprising:

a pair of loop ends extending toward the annularly shaped body and configured to secure the backup ring to the annularly shaped body;

an inflected portion located between the loop ends and in abutment with the annularly shaped body, wherein the inflected portion facilitates elastic deformation of the backup ring; and

a sealing ring disposed in the notched portion of the annular body and configured to provide a biasing force in a radially inward direction with respect to the annular body.

Appellants respectfully submit that the Examiner has failed to establish *prima facie* case of obviousness with respect to claim 28 because the stated combination fails to disclose all features recited in the claim. Specifically, the stated combination fails to disclose a sealing ring disposed in a notched portion of the annular body and configured to provide a biasing force in a radially inward direction. Recalling the arguments against anticipation of claim 19 by Kilmoyer, Appellants submit that Kilmoyer does not disclose a circumferential difference between the sealing ring and the notched portion of the seal body that provides a biasing force in a radially inward direction. Instead, Kilmoyer discloses soft seal rings which function based upon their



greater cross sectional area than the groove and their contact with the annular gap walls. In addition, McEver, Vanderford, and Taylor fail to obviate the deficiencies of Kilmoyer. Thus, the Examiner has failed to establish a *prima facie* case of obviousness because the cited references, taken alone or in hypothetical combination, do not disclose every element of independent claim 28.

Moreover, Appellants respectfully assert that McEver and Vanderford are not properly combinable. Specifically, as discussed above with respect to the third ground of rejection, McEver explicitly teaches away from Vanderford. *See* McEver, col. 1, lines 21-32.

Accordingly, Appellants respectfully assert that McEver, Vanderford, Taylor, and Kilmoyer do not support a *prima facie* case of obviousness with respect to independent claim 28. Thus, Appellants respectfully request that the Board withdraw the rejection of independent claim 28 and direct the Examiner to allow this claim.

4. **Conclusion**

If the Examiner or the Board believes that a telephonic interview would assist in the prosecution of the present application to allowance, such an interview with the undersigned is sincerely invited.

Respectfully submitted,

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